CLAIMS

1. A semiconductor device comprising connection plug wherein a nanomaterial is substantially uniformly disposed in a section of the connection plug formed from a metal.

2. A semiconductor device comprising an interconnection wherein a nanomaterial is substantially uniformly formed on a bottom surface of the interconnection formed from a metal.

3. The semiconductor device according to claim 1, wherein the nanomaterial is a fibrous carbon nanomaterial, a particle-like carbon nanomaterial or a thin silicon wire.

4. The semiconductor device according to claim 2, wherein the nanomaterial is a fibrous carbon nanomaterial, a granular particle-like carbon nanomaterial or a thin silicon wire.

5. The semiconductor device according to claim 1, wherein the nanomaterial is oriented substantially perpendicularly to a substrate.

6. The semiconductor device according to claim 2, wherein the nanomaterial is oriented substantially perpendicularly to a substrate.

7. The semiconductor device according to claim 1, wherein the nanomaterial is provided in the whole connection plug.

8. The semiconductor device according to claim 2, wherein the nanomaterial is provided up to the vicinity of a top surface of the interconnection.

9. The semiconductor device according to claim 1, wherein the metal is formed by an MOCVD method or a plating method.

10. The semiconductor device according to claim 2, wherein the metal is formed by an MOCVD method or a plating method.

11. A method of manufacturing a semiconductor device, wherein the method comprises the step of forming particles of nanometer size on an insulating base, the step of causing a nanomaterial to grow on the particles of nanometer size, the step of depositing a metal on the substrate on which the nanomaterial has grown, and the step of working the metal including the nanomaterial into an interconnection.

12. A method of manufacturing a semiconductor device, wherein the method comprises the step of forming a trench in an insulating base, the step of forming particles of nanometer size at least in a bottom portion of the trench, the step of causing a nanomaterial to grow on the particles of nanometer size, the step of depositing a metal so that the trench is embedded with the metal, and the step of working the metal including the nanomaterial into an interconnection.

13. The method of manufacturing a semiconductor device according to claim 12, wherein the insulating base has an interconnection in a lower layer or a

device element formed on the semiconductor substrate and that at least part of the lower-layer interconnection or the device element is exposed to part of the bottom portion of the trench formed in the insulating base.

14. The method of manufacturing a semiconductor device according to claim 11, wherein the particles of nanometer size are any of iron, platinum, nickel, cobalt or silicide substances of nickel and cobalt, and iron oxides.

15. The method of manufacturing a semiconductor device according to claim 12, wherein the particles of nanometer size are any of iron, platinum, nickel, cobalt or silicide substances of nickel and cobalt, and iron oxides.

16. The method of manufacturing a semiconductor device according to claim 11, wherein the nanomaterial is a fibrous carbon nanomaterial, a particle-like carbon nanomaterial or a thin silicon wire.

17. The method of manufacturing a semiconductor device according to claim 12, wherein the nanomaterial is a fibrous carbon nanomaterial, a particle-like carbon nanomaterial or a thin silicon wire.

18. The method of manufacturing a semiconductor device according to claim 11, wherein in the step of depositing a metal, the metal is deposited by a plating method or an MOCVD method.

19. The method of manufacturing a semiconductor device according to claim 12, wherein in the step of depositing a metal, the metal is deposited by a plating method or an MOCVD method.

20. The semiconductor device according to claim 1, wherein the connection plug formed from a metal is formed by a plating method which involves using a plating liquid containing a nanomaterial.

21. The semiconductor device according to claim 2, wherein the interconnection formed from a metal is formed by a plating method which involves using a plating liquid containing a nanomaterial.

22. A method of manufacturing a semiconductor device, wherein the method comprises the step of forming a metal plated film on an insulating base, the metal plated film containing a nanomaterial by using a plating liquid containing the nanomaterial, and the step of working the metal plated film containing the nanomaterial into an interconnection.

23. A method of manufacturing a semiconductor device, wherein the method comprises the step of forming a trench in an insulating base, the step of forming a metal plated film containing a nanomaterial by using a plating liquid containing the nanomaterial in such a manner as to embed at least the trench, and the step of working the metal plated film containing the nanomaterial into an interconnection.

24. The method of manufacturing a semiconductor device according to claim 23, wherein at least part of the lower-layer interconnection and the device element is exposed to part of a bottom portion of the trench formed on the insulating base.

25. The method of manufacturing a semiconductor device according to claim 22, wherein the nanomaterial is a fibrous carbon nanomaterial, a granular carbon nanomaterial or a thin silicon wire.

26. The method of manufacturing a semiconductor device according to claim 23, wherein the nanomaterial is a fibrous carbon nanomaterial, a granular carbon nanomaterial or a thin silicon wire.